We claim

1. An IR camera comprising:
   a. an IR Focal Plane Array comprising a number of detector elements as sensor means;
   b. an optical system focusing an object onto said Focal Plane Array;
   c. signal processing system connected to said Focal Plane Array;
   d. a modular building comprising:
   d1. a camera housing provided with said Focal Plane Array and said signal processing system;
   d2. an absorbent/emitting shielding device connected to said camera housing; and
   d3. an optical focusing system being removably mounted to said shielding device.

2. An IR camera according to claim 1, further comprising:
   - program means in said processing system to adapt the signals from said detector elements in said Focal Plane Array to features in surroundings of said Focal Plane Array:
   - information means to feed information about amended features in said surroundings to said program means in said signal processing system.

3. An IR camera according to claim 1, comprising
a Focal Plane Array holding device providing a thermal coupling directly from said Focal Plane Array to said absorbent shielding;
pressing means pressing said holding device against said shielding.

4. An IR camera according to claim 1, comprising:
   - a cavity providing said absorbent shielding;
   - a first aperture at one end wall of said cavity turned to said Focal Plane Array;

- a second aperture at another end wall of said cavity for the beam path from said object to said Focal Plane Array;
- said cavity having a ratio of dept to width such that all stray light outside the optical path to said Focal Plane Array has to be reflected at least three times inside said cavity before it can go through said first aperture to reach said Focal Plane Array.

5. An IR camera according to claim 4, wherein

- said cavity comprises an approximately cylindrical internal wall;
- the dimension of said cavity having a relation between the diameter in relation to depth of said cavity being greater than 5 and having a radius being at least 3 times the width of any of said apertures.

6. An IR camera according to claim 4, comprising a Focal Plane Array having a small size.

7. An IR camera according to claim 4, wherein said shielding comprises said cylindrical internal wall and said end wall comprising said first aperture as an integral piece adapted to be cast.

8. An IR camera according to claim 4, comprising
a coating with a high absorption coefficient on a cylindrical inside wall of said cavity.

9. An IR camera according to claim 5, comprising
a simple wedge geometry of an inside cylindrical wall to increase absorption inside said cavity.

10. An IR camera according to claim 1, comprising:

a normally open shutter between said optical focusing system and said Focal Plane Array;

activating means for providing a shutter close signal;

shutter means for closing the beam path from said object to said focal plane array after receiving said shutter close signal; and

indicating means indicating that at least one detector element in said Focal Plane Array has a steady state signal after that said shutter close signal has been provided.

11. An IR camera according to claim 10, wherein said indicating means is adapted to indicating a predetermined histogram design representing said steady state signal from said at least one detector element.

12. An IR camera according to claim 1, wherein

said optical focusing system is provided with informative means belonging to said specific focusing system;

downloading means is adapted to download a signal having relation to said informative means and to transfer it to said processing device; and

- adjustment means is adapted to adjust said infrared camera making use of said downloaded signal having relation to said specific focusing system.

13. An IR camera according to claim 12, comprising:

storing means storing said computed information based on said downloaded signal having relation to said optics;

restoring means restoring said stored information when said component is inserted again.

14. An IR camera according to claim 1, wherein

- said optical focusing system is provided with informative means belonging to said optical focusing system giving information of its features;

- downloading means adapted to download a signal from said informative means and to transfer it to said processing device;
- said processing device is adapted to adjust signals from detector elements in said Focal Plane Array in relation to said downloaded signals.

15. An IR camera according to claim 14, comprising:
storing means storing said computed information based on said downloaded signal having relation to said optics;
restoring means restoring said stored information when said component is inserted again.

16. An IR camera according to claim 12, wherein

- said optical focusing system is an exchangeable kind of system provided with a code,
- code reading means is provided for reading said code and adjusting calibration of said IR camera by making use of said code.

17. An IR camera according to claim 12, wherein
said information in said informative means regarding said optical focusing system is such that it can be transformed into start information for deriving at least one of the following features:

- non-uniformity corrections
- transmission parameters
- vinjetting parameters
- compensation matrixes
- special characteristics
- lens/filter part number
- lens/filter serial number
- a combination of at least two of the features above.

18. An IR camera according to claim 12, comprising:
storing means storing said computed information based on said downloaded signal having relation to said optics;
restoring means restoring said stored information when said component is inserted again.

19. An IR camera according to claim 12, comprising
temperature sensor means providing calibration parameters for compensating optical features, such as focus, transmission, distance calculations.

20. An absorbent shielding provided in front of detector sensor means in an IR camera, comprising:

- a cavity;
- a first aperture at a first end wall of said cavity turned to said Focal Plane Array;
- a second aperture at a second end wall of said cavity remote to said first end wall for the beam path from said object to said Focal Plane Array;
- said cavity having a ratio of dept to width such that all stray light outside the optical path to said Focal Plane Array has to be reflected at least three times inside said cavity before it can go through said first aperture to reach said Focal Plane Array.

21. An absorbent shielding according to claim 20, wherein

- said cavity has an approximately cylindrical internal wall;
- the dimension of said cavity having a relation between the diameter in relation to depth of said cavity being greater than 5 and having a radius being at least 3 times the width of any of said apertures.

22. An absorbent shielding according to claim 20, comprising said cylindrical internal wall and said end wall comprising said first aperture as an integral piece adapted to be cast.

23. An absorbent shielding according to claim 20, comprising a Focal Plane Array having a small size.

24. An absorbent shielding according to claim 20, comprising a coating with a high absorption coefficient on a cylindrical inside wall of said cavity.

25. An absorbent shielding according to claim 20, comprising a simple wedge geometry of said inner cylindrical walls to increase the absorption inside said cavity.

26. An absorbent shielding according to claim 20, comprising

- a Focal Plane Array holding device in the vicinity of said first aperture providing a thermal coupling directly from a Focal Plane Array to said absorbent shielding;
- pressing means pressing said holding device against said shielding.

27. A shutter for an IR camera an optical focusing system and a Focal Plane Array as detecting system for said camera, comprising:
activating means for providing a shutter close signal;
shutter closing means for closing the beam path from said object to said focal plane array after receiving said shutter close signal; and
indicating means indicating that at least one detector element in said FPA has a steady state signal after that said shutter close signal has been provided.

28. A shutter according to claim 27, wherein said indicating means is adapted to indicating a predetermined histogram design representing said steady state signal from said at least one detector element.

29. An optical focusing system for an IR camera an optical focusing system and a Focal Plane Array as detecting system for said camera, comprising:

- specific means associated to said specific focusing system;
- downloading means to download a signal having relation to said specific means; and
- adjustment means to adjust said infrared camera making use of said downloaded signal having relation to said specific focusing system.

30. An optical focusing system according to claim 29, wherein

- each optical component, such as each lens and filter, in said optical focusing system is provided with specific means giving information of its features;
- said downloading means being adapted to download a signal from said specific means and to transfer it to said processing device;
- said processing device is adapted to adjust signals from detector elements in said Focal Plane Array in relation to said downloaded signals.

31. An optical focusing system according to claim 29, wherein

- said optical component is an exchangeable kind of component provided with a code,

  code reading means is provided for reading said code and adjusting calibration of said IR camera by making use of said code.

32. An optical focusing system according to claim 29, wherein

said information regarding said optics is such that it could be transformed into start information for deriving at least one of the following features:

- non-uniformity corrections
- transmission parameters

  vinjetting parameters
- compensation matrixes

- special characteristics
- lens/filter part number
  lens/filter serial number
- a combination of at least two of the features above.

33. An optical focusing system according to claim 29, wherein
storing means storing said computed information based on said downloaded signal having relation to said optics;
restoring means restoring said stored information when said component is inserted again.

34. An optical focusing system according to claim 29, comprising
temperature sensor means providing calibration parameters for compensating optical features, such as focus, transmission, distance calculations.

35. A method to build an IR camera comprising:
a modular building by

a. providing a camera housing having an IR Focal Plane Array comprising a number of detector elements as sensor means, said camera housing having signal processing system connected to said Focal Plane Array;
b. connecting an absorbent/emitting shielding device removably to said camera housing; and
c. mounting an optical focusing system focusing an object onto said Focal Plane Array removably to the combined camera housing and shielding device.

36. A method according to claim 35, further comprising:

- inserting program means in said processing system adapting signals from said detector elements in said Focal Plane Array to features in surroundings of said FPA;

- feeding information about amended features in said surroundings to said program means in said signal processing system.

37. A method according to claim 35, further comprising:

- providing a normally open shutter between said optical focusing system and said Focal Plane Array;
- providing a shutter close signal;
- closing the beam path from said object to said focal plane array after receiving said shutter close signal; and
- indicating that at least one detector element in said FPA has a steady state signal after that said shutter close signal has been provided; and
- then making a calibration procedure.

38. A method according to claim 37, wherein
said indicating is done by studying a histogram and indicating when a predetermined histogram design is provided from said at least one detector element representing said steady state signal.

39. A method according to claim 35, comprising:
providing said absorbent shielding as a cavity having a cylindrical internal wall and having a first aperture at one end wall of said cylindrical internal wall turned to said FPA and a second aperture at another end wall of said cavity for the beam path from said object to said FPA, said cavity having a relation between the diameter in relation to depth of said cavity being greater than 5 and having a radius being at least 3 times the width of any of said apertures.

40. A method according to claim 39,
dimensioning said cavity such that all stray light outside the optical path to said FPA has to be reflected at least three times inside said cavity before it can go through said first aperture to reach said FPA.

41. A method according to claim 39, comprising
setting said FPA floating inside said camera housing and in thermal mechanical fix contact with said absorbent shielding.

42. A method according to claim 39, wherein casting said cylindrical wall and said end wall comprising said first aperture as an integral piece.

43. A method according to claim 39, providing said shutter in said other end wall having said second aperture in said shielding.

44. A method according to claim 39, providing a coating with a high absorption coefficient on a cylindrical inside wall of said cavity.

45. A method according to claim 39, providing a wedge geometry of said inner cylindrical walls to increase the absorption inside said cavity.

46. A method according to claim 35, comprising:

- providing said optical focusing system with specific means associated to said specific focusing system;
- downloading a signal having relation to said specific means; and
- adjusting said infrared camera making use of said downloaded signal having relation to said specific focusing system.

47. A method according to claim 35, wherein

- providing each optical component, such as each lens and filter, in said optical focusing system with specific means giving information of its features;
- downloading a signal from said specific means and to transfer it to said processing device;

- adjusting signals from detector elements in said Focal Plane Array in relation to said downloaded signals.

48. A method according to claim 35, wherein

providing a code on said optical component being an exchangeable kind of component;

- reading said code; and

adjusting calibration of said IR camera by making use of said code.

49. A method according to claim 35, wherein

transforming said information regarding said optics into start information for deriving at least one of the following features:

- non-uniformity corrections
- transmission parameters

vinjetting parameters

- compensation matrixes

special characteristics

- lens/filter part number
- lens/filter serial number
- a combination of at least two of the features above.

50. A method according to claim 35, comprising:

storing said computed information based on said downloaded signal having relation to said optics; and

restoring said stored information when said component is inserted again.

51. A method according to claim 35, comprising:

sensing temperature in said IR camera; and

providing calibration parameters for compensating optical features, such as focus, transmission, distance calculations.

52. A method to detect when an optical component in a beam path from an object to a focal plane array (FPA) in an infrared camera influences said adjustment of said infrared camera, and to adjust said infrared camera, **characterized** by

- providing said optical component with specific means associated to said special kind of component,
- downloading a signal having relation to said specific means,
- adjusting said infrared camera making use of said signal having relation to said specific means.

53. A method according to claim 52, **characterized** by

- examine if said optical component is an exchangeable kind of component, examine if said specific means is a code provided on said component,
- examine if said code is stored in said infrared camera,
- adjusting a calibration of said infrared camera by making use of said code.

54. A method according to claim 52, **characterized** by
providing said code such that it could be transformed into start information for deriving at least one of the following features:

non-uniformity corrections

- transmission parameters
- vinjetting parameters
- compensation matrixes

special characteristics

lens/filter part number

- lens/filter serial number
- a combination of at least two of the features above.

55. A method according to claim 52, **characterized** by

storing said downloaded signal having relation to said specific means and/or features computed by means of said code for said component to be restored when said component is inserted again.

56. A method according to claim 55, **characterized** by optical or magnetical reading of said code.

57. A method according to claim 52, **characterized** by temperature sensing for providing calibration parameters for compensating optical features, such as focus, transmission, distance calculations.

58. A method for detecting when a shutter is provided in the beam path from an object to a focal plane array in an IR camera, **characterized** by

- detecting activation of a shutter close signal; and
- indicating when said FPA has a predetermined and/or steady state after said activation of said shutter close signal.

59. A method according to claim 58, wherein said indicating is done by studying a histogram and indicate when a predetermined histogram design is provided from said at least one detector element representing said steady state signal.

60. A method for providing shielding in an infrared camera having a focal plane array (FPA) as a recording means for an infrared beam from an object to be monitored, comprising:
providing a cavity having an approximately cylindrical internal wall and having a first aperture at one end wall of said cavity turned to said FPA and a second aperture at another end wall of said cavity for the beam path from said object to said FPA, said cavity having a ratio of dept to radius being at least 1 to 5 and a radius being at least 3 times the width of any of said apertures.

61. A method according to claim 60,
dimensioning said cavity such that all stray light outside said optical path to said FPA has to be reflected at least three times inside said cavity before it can go through said first aperture to reach said FPA.

62. A method according to claim 60, providing an FPA having a small size.

63. A method according to claim 60, providing a coating with a high absorption coefficient on a cylindrical inside wall of said cavity.

64. A method according to claim 60, providing a wedge geometry of said inner cylindrical walls to increase said absorption inside said cavity.

65. A method according to claim 60, providing said FPA in thermal mechanical fix contact with said end wall comprising said first aperture.